

AMENDMENTS TO THE CLAIMS

The following list of claims replaces all prior versions and lists of claims:

1. (Currently Amended) A method ~~of determining an amount of bandwidth needed on a link, the method~~ comprising:
receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein
the GoS factor specifies a maximum call blocking probability for [[said]] a link
and the QoS factor specifies a maximum packet loss probability for said link;
determining, for each of one or more ~~amounts of bandwidth~~ candidate link sizes of said
link, a plurality of state probabilities based on the GoS factor and a plurality of
marginal packet loss probabilities based on the QoS factor, wherein said
determining is performed based on user behavior and traffic characteristics;
determining, based on user behavior and traffic characteristics, ~~said amount~~ a link size of
said link;
wherein [[the]] determining said link size of said link comprises selecting one of the one
or more ~~amounts of bandwidth~~ candidate link sizes of said link using the plurality
of state probabilities and the plurality of marginal packet loss probabilities; and
storing said amount in memory.
2. (Original) The method of Claim 1, wherein said user behavior comprises an average
time between arrivals of calls made by one or more users using said link.
3. (Original) The method of Claim 1, wherein said user behavior comprises an average
duration of calls made by one or more users using said link.
4. (Original) The method of Claim 1, wherein said traffic characteristics comprise an
average time between arrivals of packets on said link.
5. (Original) The method of Claim 1, wherein said traffic characteristics comprise an
average duration of periods during which packets are transmitted relatively continuously
on said link.

6. (Currently Amended) The method of Claim 1, wherein determining said ~~amount~~ link size of said link is based on a specified number of users.
- 7-10. (Canceled)
11. (Currently Amended) The method of Claim 1, wherein ~~determining said amount is based on each of the plurality of state probabilities~~ is a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.
12. (Currently Amended) The method of Claim 1, wherein ~~determining said amount is based on each of the plurality of marginal packet loss probabilities~~ is a probability that a packet will be lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by a specified number of users.
13. (Currently Amended) The method of Claim 1, wherein determining said ~~amount~~ link size of said link is based on a product of:
a state probability in the plurality of state probabilities, wherein the state probability is a
probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link;
and
a marginal packet loss probability in the plurality of marginal packet loss probabilities,
wherein the marginal packet loss probability is a probability that a packet will be
lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by said specified number of users.
- 14-19. (Canceled)
20. (Currently Amended) A computer-readable storage medium carrying one or more sequences of instructions ~~for determining an amount of bandwidth needed on a link,~~

which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein the GoS factor specifies a maximum call blocking probability for [[said]] a link and the QoS factor specifies a maximum packet loss probability for said link;

determining, for each of one or more ~~amounts of bandwidth~~ candidate link sizes of said link, a plurality of state probabilities based on the GoS factor and a plurality of marginal packet loss probabilities based on the QoS factor, wherein said determining is performed based on user behavior and traffic characteristics;

determining, based on user behavior and traffic characteristics, ~~said amount~~ a link size of said link;

wherein [[the]] determining said link size of said link comprises selecting one of the one or more ~~amounts of bandwidth~~ candidate link sizes of said link using the plurality of state probabilities and the plurality of marginal packet loss probabilities; and storing said amount in memory.

21. (Previously Presented) The computer-readable storage medium of Claim 20, wherein said user behavior comprises an average time between arrivals of calls made by one or more users using said link.
22. (Previously Presented) The computer-readable storage medium of Claim 20, wherein said user behavior comprises an average duration of calls made by one or more users using said link.
23. (Previously Presented) The computer-readable storage medium of Claim 20, wherein said traffic characteristics comprise an average time between arrivals of packets on said link.
24. (Previously Presented) The computer-readable storage medium of Claim 20, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.
25. (Currently Amended) The computer-readable storage medium of Claim 20, wherein

determining said ~~amount~~ link size of said link is based on a specified number of users.

26-29. (Canceled)

30. (Currently Amended) The computer-readable storage medium of Claim 20, wherein ~~determining said amount is based on~~ each of the plurality of state probabilities is a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.
31. (Currently Amended) The computer-readable storage medium of Claim 20, wherein ~~determining said amount is based on~~ each of the plurality of state probabilities is a probability that a packet will be lost when said packet is sent through said link that: has a specified amount of bandwidth; and is being used by a specified number of users.
32. (Currently Amended) The computer-readable storage medium of Claim 20, wherein determining said ~~amount~~ line size of said link is based on a product of:
a state probability in the plurality of state probabilities, wherein the state probability is a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link; and
a marginal packet loss probability in the plurality of marginal packet loss probabilities,
wherein the marginal packet loss probability is a probability that a packet will be lost when said packet is sent through said link that: has a specified amount of bandwidth; and is being used by said specified number of users.
33. (Currently Amended) An apparatus ~~for determining an amount of bandwidth needed on a link,~~ comprising:
means for receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein the GoS factor specifies a maximum call blocking probability for [[said]] a link and the QoS factor specifies a maximum packet loss probability for said link;

means for determining, for each of one or more ~~amounts of bandwidth~~ candidate link sizes of said link, a plurality of state probabilities based on the GoS factor and a plurality of marginal packet loss probabilities based on the QoS factor, wherein said determining is performed based on user behavior and traffic characteristics;
means for determining, based on user behavior and traffic characteristics, ~~said amount a~~ link size of said link;

wherein [[the]] determining said link size of said link comprises selecting one of the one or more ~~amounts of bandwidth~~ candidate link sizes of said link using the plurality of state probabilities and the plurality of marginal packet loss probabilities; and
means for storing said amount in memory.

34. (Original) The apparatus of Claim 33, wherein said user behavior comprises an average time between arrivals of calls made by one or more users using said link.
35. (Original) The apparatus of Claim 33, wherein said user behavior comprises an average duration of calls made by one or more users using said link.
36. (Original) The apparatus of Claim 33, wherein said traffic characteristics comprise an average time between arrivals of packets on said link.
37. (Original) The apparatus of Claim 33, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.
38. (Original) The apparatus of Claim 33, wherein determining said amount is based on a specified number of users.
- 39-42. (Canceled)
43. (Currently Amended) The apparatus of Claim 33, wherein ~~determining said amount is based on each of the plurality of state probabilities~~ is a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.

44. (Currently Amended) The apparatus of Claim 33, wherein ~~determining said amount is based on each of the plurality of state probabilities~~ is a probability that a packet will be lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by a specified number of users.
45. (Currently Amended) The apparatus of Claim 33, wherein determining said ~~amount~~ link size of said link is based on a product of:
a state probability in the plurality of state probabilities, wherein the state probability is a
probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link;
and
a marginal packet loss probability in the plurality of marginal packet loss probabilities,
wherein the marginal packet loss probability is a probability that a packet will be lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by said specified number of users.
46. (Currently Amended) An apparatus ~~for determining an amount of bandwidth needed on a link,~~ comprising:
a network interface that is coupled to a data network for receiving one or more packet flows therefrom;
a processor; and
one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:
receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein the GoS factor specifies a maximum call blocking probability for ~~[[said]]~~ a link and the QoS factor specifies a maximum packet loss probability for said link;
determining, for each of one or more ~~amounts of bandwidth~~ candidate link sizes of said link, a plurality of state probabilities based on the GoS

factor and a plurality of marginal packet loss probabilities based on the QoS factor, wherein said determining is performed based on user behavior and traffic characteristics;
determining, based on user behavior and traffic characteristics, ~~said~~ amount a link size of said link;
wherein [[the]] determining said link size of said link comprises selecting one of the one or more ~~amounts of bandwidth~~ candidate link sizes of said link using the plurality of state probabilities and the plurality of marginal packet loss probabilities; and
storing said amount in memory.

47. (Original) The apparatus of Claim 46, wherein said user behavior comprises an average time between arrivals of calls made by one or more users using said link.
48. (Original) The apparatus of Claim 46, wherein said user behavior comprises an average duration of calls made by one or more users using said link.
49. (Original) The apparatus of Claim 46, wherein said traffic characteristics comprise an average time between arrivals of packets on said link.
50. (Original) The apparatus of Claim 46, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.
51. (Original) The apparatus of Claim 46, wherein determining said amount is based on a specified number of users.
- 52-55. (Canceled)
56. (Currently Amended) The apparatus of Claim 46, wherein ~~determining said amount is based on~~ each of the plurality of state probabilities is a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.

57. (Currently Amended) The apparatus of Claim 46, wherein ~~determining said amount is based on each of the plurality of state probabilities~~ is a probability that a packet will be lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by a specified number of users.
58. (Currently Amended) The apparatus of Claim 46, wherein determining said ~~amount~~ link size of said link is based on a product of:
a state probability in the plurality of state probabilities, wherein the state probability is a
probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link;
and
a marginal packet loss probability in the plurality of marginal packet loss probabilities,
wherein the marginal packet loss probability is a probability that a packet will be
lost when said packet is sent through said link that:
has a specified amount of bandwidth; and
is being used by said specified number of users.
59. (Canceled)